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ABSTRACT

A study tested the notion that information stories in "USA Today" are more readable because its editors shorten them by leaving out background details. It also examined whether readers comprehend as much from stories written in "USA Today" style as they do from stories written in the more traditional "New York Times" style. For the Readability Study seven readability formulas were applied to two stories reported in both papers. For the Reader Comprehension Study, 166 undergraduate subjects read either the "New York Times" or the "USA Today" versions of the stories. Results of the readability measures showed that both versions of the stories were at or above college level, but only the Fog index significantly discriminated between the versions of the stories, finding the "USA Today" version more readable in terms of sentence length and complexity. The comprehension study results showed that readers of the "USA Today" stories comprehend significantly less than do readers of the same stories in "New York Times" style. In contrast to arguments of "USA Today" editors, multiple regressions showed that newspaper use was negatively related to comprehension of "USA Today" stories. However, frequent and attentive reading of "hard news" stories is a predictor of better comprehension for "USA Today" stories, while "soft news" stories were related to better comprehension for "New York Times" stories. Findings suggest that "USA Today" editors may be placing reader comprehension at risk when they shorten analysis pieces by leaving out background. (Three tables of data are included; 19 references are attached.) (Author/RS)

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Does Shorter Mean Easier to Understand?

A Study of Comprehension of USA Today Information Stories.

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This study was designed to see if *USA Today* information stories are more readable and more comprehensible. Readability analyses showed that stories from the *USA Today* and the *New York Times* were both at college level, but *USA Today* stories were more readable. However, readers of *USA Today* stories comprehended less, and frequent newspaper use was negatively related to comprehension. The authors argue that *USA Today* editors may risking reader comprehension when they shorten stories.

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This study was designed to test the notion that information stories in *USA Today* are more readable because its editors shorten them by leaving out background details. The study also examined whether readers comprehend as much from stories written in *USA Today* style as they do from stories written in the more traditional, complete *New York Times* style. Seven readability formulas were applied to two stories reported in both papers. In addition, 166 subjects read either the *New York Times* or the *USA Today* versions of the stories. Results of the readability measures showed that both versions of the stories were at or above college level, but only the Fog index significantly discriminated between the versions of the stories, finding the *USA Today* version more readable in terms of sentence length and complexity. The comprehension study results showed that readers of *USA Today* stories comprehended significantly less than did readers of the same stories in *New York Times* style. In contrast to arguments of *USA Today* editors, who say that their readership doesn't need background because they use *USA Today* as a supplement to other newspaper reading, multiple regressions showed that newspaper use was **negatively** related to comprehension of *USA Today* stories. However, frequent and attentive reading of "hard news" stories is a predictor of better comprehension for *USA Today* stories, while "soft news" stories were related to better comprehension for *New York Times* stories. The authors argue that *USA Today* editors may be placing reader comprehension at risk when they shorten analysis pieces by leaving out background.

Does Shorter Mean Easier to Understand?

A Study of Comprehension of *USA Today* Information Stories.

Renee A. Botta, Suzanne Pingree and Robert P. Hawkins

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How best to present the news? What do readers need in order to comprehend the issues of the day? How much complexity do they want, or will they put up with? Do simplicity of vocabulary and grammar matter? Can editors assume background knowledge of issues, or must this be provided as part of stories? These and similar issues have been widely discussed by journalists (and less often by researchers) for years, and have been at the heart of many debates over reshaping newspapers around the country to respond to perceived changes in the needs and desires of readers.

In many ways, the most radical model for such "remakes" has been *USA Today*, setting a benchmark with shorter stories, graphics, larger type, and in other ways supposedly making the paper easier to digest than a typical daily.[1] Implicit (and sometimes explicit) in reactions to this style is the notion that the presentation style of *USA Today* is substituting surface glitter for substance, and that efforts to attract the audience are at the expense of providing the sort of information that readers need to

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[1]George A. Gladney, "The McPaper Revolution? USA Today-Style Innovation at large U.S. Dailies," Newspaper Research Journal,13:54-71(Winter/Spring, 1992).

really understand the news. *USA Today* management has argued instead that it purposely removes background details for brevity because its readers are well-informed newspaper consumers, typically reading more than one paper daily, so that *USA Today* functions largely as a supplement, a second paper.[2]

Whether this is true or not as a generalization, the essential questions remain: How has *USA Today* simplified its stories? Are they shorter, more readable, missing minor facts or some combination of the three? More importantly, what happens when readers come to these simplified stories? For example, does lack of background information make comprehension of the essentials easier because they are "stripped down," or is it instead more difficult to understand the essentials without the background?

Some critics argue that *USA Today*'s style encourages brevity -- shorter sentences, shorter stories and easier-to-digest text. Gladney[3] found that *USA Today*'s mean length for lead sentences was 21.5 words, compared to several large dailies with a mean of 27.6 words. If leads are any indication of story length, then *USA Today* stories would seem to be shorter. But are these (possibly) shorter stories easier to read, too? There is some reason to believe that this would be true. Catalano[4] argued that longer sentences "incorporate more words, and more words mean more relationships, which increase the

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[2]Peter Prichard, The Making of McPaper: The Inside Story of USA Today (Kansas City: Andrews, McMeel & Parker, 1987).

[3]Gladney, op. cit.

[4]Kevin Catalano, "On the Wire: How Six News Services are Exceeding Readability Standards," Journalism Quarterly, 67:1:97-103 (Spring, 1990).

effort for the reader...Long, complex sentences are barriers to comprehension."

However, one could also argue that shorter sentences means less information. If the information that is not provided would have offered important background details, then the brevity of *USA Today* stories might actually interfere with reader comprehension. That is, if the missing information contains useful causal connections, bridges, transitions, or ways to help the reader make links between ideas, then reader comprehension would decrease.[5] And increased background information, whether within the story or as a sidebar, has been found to increase comprehension.[6]

This study was designed to test some of these ideas in two ways. First, we wanted to explore further the notion that *USA Today* is easy to digest by evaluating stories according to a number of measures of readability. We have some evidence that *USA Today* stories are shorter, but none that they are actually easier to read.

Second, we wanted to pursue some of the contradictory commonsense ideas about reader comprehension of shorter stories with missing details. On the one hand, some research implies that readers comprehend less when background and other explanatory information are removed. On the other hand, *USA Today* argues that

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[5]See, for example: Arthur C. Graesser, S.P. Robertson and P.A. Anderson, "Incorporating Inferences in Narrative Representations: A study of how and why," Cognitive Psychology, 13:1:1-26, (1981); Susan Kemper, "Measuring the Inference Load of Text," Journal of Educational Psychology, 75:3:391-401, (June, 1983); Susan Kemper, "Filling in the Missing Links," Journal of Verbal Learning and Verbal Behavior, 21:1:99-107, (1982).

[6]Jeffrey L. Griffin and Robert L. Stevenson, "Influence of Text and Graphics in Increasing Understanding of Foreign News Context," Newspaper Research Journal, 13:84-99, (Winter/Spring, 1992); Douglas B. Ward, "The Effectiveness of Sidebar Graphics," Journalism Quarterly, 69:2:318-328, (Summer, 1992).

removing this information will not affect comprehension for a well-informed reader.

Third, we were interested in how readers evaluate fairly complete vs. shorter, easier to read stories with information missing. Do they have a standard of journalistic quality that is applied to their reading? How aware are they of the differences between *USA Today* and, for example, the *New York Times*, and how do those evaluations affect their comprehension?

METHODS

Readability Study

We selected two fairly complex stories from the front page of issues of *USA Today* during 1988.[7] One story was about the state of education in the U.S. today, and the other story was about a Supreme Court ruling on digging in people's trash. Because we wanted to be able to compare the readability of *USA Today* stories against a comprehensive standard, we selected stories on the same subjects from the front page of the *New York Times*, a newspaper well-known for its quality coverage.[8]

We used seven different readability tests. The Dale-Chall readability formula rates material above fifth grade level based on the number of words in the selection that do not

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[7]USA Today, Jan. 1 through June 30, 1988.

[8]New York Times, Jan. 1 through June 30, 1988.

appear on the Dale list of 3,000 words, "known by at least 80 percent of the children in grade four."[9] (That this list of words was developed in 1948 makes it at least somewhat problematic for today's language.) The Spache formula is also based on a word list, not quite as out of date (1974). However, it too is problematic for this study because it tops out at the 4th grade reading level.[10] We expected that the stories from both newspapers would be above that level.

The Fry readability formula rates material from first grade through college levels of difficulty based on the number of syllables in the sample and the number of words and sentences.[11] The Flesch readability formula rates material on a score from 0 to 100 with 0 being extremely easy and 100 being very difficult. The Flesch uses number of syllables, words and sentences, like the Fry, but it also describes typical reading for each level (very difficult to very easy).[12] The Raygor formula rates third grade through college and beyond based on the number of words with six or more letters and the number of words and sentences in the sample.[13] The Fog formula rates for first grade and higher based on the number of words with three or more syllables and the number of words and

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[9]Edgar Dale and Jeanne S. Chall, Formula for Predicting Readability (Ohio: Bureau of Educational research, 1948).

[10]George D. Spache, Good Reading for Poor Readers, (Champaign, Ill.: Garrard Pub. Co., 1974).

[11]Edward B. Fry, Fry Readability scale: Extended, (Providence: Jamestown Publishers, 1978).

[12]Rudolf Flesch, How to Test Readability, (New York: Harper, 1951).

[13]Alton L. Raygor, Effective Reading:Improving Reading Rates and Comprehension, (New York: McGraw-Hill, 1985).

sentences in the sample.[14] Finally, the SMOG formula rates for third grade and higher based on the number of words with three or more syllables and the number of words and sentences in the sample. The SMOG formula was applied to samples of the four stories, since it is only intended to be used on samples of 30 sentences.[15]

We used all seven formulas in an effort to be exhaustive, and to discover as much as we could both about the readability of the stories and the sensitivity of the various readability formulas.[16]

Reader Comprehension Study

A questionnaire was administered to 166 undergraduates in various courses (not journalism) at a large Midwestern university. The subjects were randomly assigned to the *USA Today* stories or the *New York Times* stories used in the readability study.

The stories were prepared so that information that would identify their source was removed. The students were told these were actual stories that had appeared in a newspaper, and were asked to read them as they would a news article.

The students completed some media use items and demographics, then read the news stories (two *New York Times* stories or two *USA Today* stories), then completed

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[14]Robert Gunning, The Technique of Clear Writing, (New York: McGraw-Hill, 1968).

[15]G. Harry McLaughlin, "SMOG grading -- a new readability formula," Journal of Reading, 12:639-646.

[16]William C. Porter, "The Value of Readability Studies," Editor & Publisher, May, 1982, p. 84; Ron Smith, "How Consistently do Readability Tests Measure the Difficulty of Newswriting?" Newspaper Research Journal, 5:4, (Summer, 1984).

comprehension and evaluation measures.

Newspaper Use Measures.

The first section of the questionnaire consisted of questions about newspaper use: How many days a week do you read the newspaper, how much time a day do you spend reading the newspaper, how often do you read certain kinds of stories (followed by a list of story types), and how much attention do you pay to those kinds of stories (again followed by a list)?

We began by constructing five measures of newspaper use: a measure of minutes per week of total newspaper use (calculated from their answers to the first two questions), a frequency measure for time spent with "hard news" stories (international news, national government news, local government news), a summary attention measure for hard news stories, and two similar measures for soft news stories (stories affection the family, feature stories, entertainment and sports stories). However, frequency and attention measures for hard news, and frequency and attention measures for soft news were highly correlated (.85 for the two hard news measures, and .68 for the two soft news measures). Therefore, we summed the two hard news measures to create a single measure of hard news use, and did the same for soft news use. Our final newspaper use variables were minutes per week, hard news use and soft news use. These measures were significantly related to each other (range of correlations was .35 to .5), but we left

them as separate indices because they tap different conceptual indicators of newspaper use.

Story Comprehension

Immediately after the students read the stories, they were asked to paraphrase what they had just read in as much detail as possible. We used an open-ended question instead of a set of multiple choice items since some research suggests that open-ended questions are a better way to test comprehension.[17]

Each student's paraphrasing of the stories was scored according to a list of facts that were common to both versions of the (*New York Times*, *USA Today*) story. The fact list was used as a checklist against which facts present in the paraphrasing was scored. Scoring was done blind to the student's condition.

Story Evaluation

After paraphrasing the story, the students were asked to evaluate the stories they had read on Likert scales. These evaluations included: in depth, entertaining, reliable, complicated, well-written, told me all I needed to know, gave enough background

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[17]See, for example: Veda Charrow, "Readability vs. Comprehensibility: A Case Study in Improving a Real Document," in Alice Davison and Georgia Green, eds., Linguistic Complexity and Text Comprehension: Readability Issues Reconsidered, (New Jersey: Lawrence Erlbaum Associates, 1988), pp. 85-114; Georgia M. Green and Margaret Olson, "Preferences for and Comprehension of Original and Readability-Adapted Materials," in Alice Davison and Georgia Green, eds., Linguistic Complexity and Text Comprehension: Readability Issues Reconsidered, (New Jersey: Lawrence Erlbaum Associates, 1988), pp. 115-140.

information, biased, informative, interesting, did not take too long to read, made me want to find our more about it, boring, I did not want to finish the story, it told me both sides of the story, and it was easy to understand. We factor analyzed these items and came up with a three-factor solution (see Table 1), naming the three factors "surface evaluation," "thoughtful critique," and "turned off." This three-factor solution has some multiple loadings among variables, but it made sufficient sense conceptually that we decided to use it in the analysis. We constructed the three measures using factor scores.

TABLE 1 ABOUT HERE

RESULTS

Readability Study.

Table 2 shows the results of our readability analyses, with results for all of the tests except the Spache, which is not included in the table because both newspapers scored above its top level. In general, the various readability formulas show very high scores -- mostly college levels -- for all tests, and little difference between condition. Only one of the formulas (the Fog) discriminated between the two versions of the stories, with the *New York Times* stories both significantly ($t=4.1$, $p<.05$) more difficult than the *USA Today*

stories.

TABLE 2 ABOUT HERE

Reader Comprehension Study.

Overall, readers who read science stories from *USA Today* had lower comprehension scores (mean = 3.32) than did readers who read the *New York Times* versions of the stories (mean = 4.07), and the difference was significant (t = 2.20, p =.03). This would lend support to the idea that the *USA Today* stories attain brevity (and possibly greater readability), at least according to the Fog) by way of being less informative. Apparently, readers do not get as much information out of them as they do out of the more complete *New York Times* stories, even though the comprehension measure is based on facts present in both stories.

But *USA Today* editors would argue that this is not a fair test, given their argument that the newspaper is a supplement to other newspapers for their well-informed readership. Readers who have a stronger newspaper habit should have enough general background knowledge to fill in the gaps in *USA Today* stories and be as good at comprehension as readers seeing more complete *New York Times* stories. Thus, we need to do an analysis that examines the effect of newspaper use on comprehension.

Also, we wanted to explore the extent to which readers felt that something was lacking in the *USA Today* stories, a feeling that we thought might be captured in our evaluation measures of the stories. Therefore, we decided to look at comprehension again in an analysis where newspaper use and evaluations of the stories were comprehension predictors. We ran a multiple regression with demographics (age and gender) entered first, newspaper use and attention as a second block, and evaluations of the stories as the third block. The results of this analysis are presented in Table 3.

TABLE 3 ABOUT HERE

As Table 3 shows, neither gender nor age (within the attenuated range of a student sample) was a significant predictor of comprehension for either the *USA Today* or the *New York Times* version. While both blocks for past newspaper use predicted comprehension significantly for both versions of the stories, the nature of those predictions was different. For the *New York Times*, those who reported more often reading and paying greater attention to "soft" news comprehended more of these stories, while readership of "hard" news was marginally negatively related to comprehension.

The picture for *USA Today* is completely different and has mixed implications for the claims that its readers do not need full background because of their greater ongoing experience with other papers. Frequency of typical newspaper readership was related

to comprehending the *USA Today* stories, but it was less frequent newspaper reading that was associated with greater comprehension. On the other hand, and in contrast to the *New York Times*, frequency of reading and attending to "hard" news was associated with greater comprehension of these stories. Reading and attending to "soft" news made no contribution to comprehension.

Finally, one of the three dimensions of evaluations of the stories predicted additional variance. While the two critique dimensions did not affect comprehension, being turned off by the story was associated with lessened comprehension for both versions.

DISCUSSION

The results of our readability study suggest that both versions of the stories were easy to read ONLY for college educated audiences and above. One readability formula (the Fog) discriminated between the *New York Times* and the *USA Today* versions of the same story. The Fog, as did all the other readability formulas, showed that both stories were both written at a fairly high level. But the Fog found that *USA Today* stories were at a significantly lower readability level than were the *New York Times* stories ($t=4.1$, $p<.05$), suggesting that the *USA Today* stories had fewer three syllable words and somewhat shorter sentences.

As noted earlier, part of the appeal of *USA Today* lies in its brevity and its supposed ease of reading for a broad but sophisticated audience pressed for time. Criticisms of

the paper as merely a "headline service" have been countered by claims that what is omitted is the background not needed by knowledgeable readers using the paper as a supplement.

Comparing comprehension of two *USA Today* stories with comprehension of two stories on the same topic taken from the *New York Times* (generally regarded as at the opposite pole in providing background information) thus provided an opportunity to test these claims. Overall, respondents include somewhat fewer target facts (present in both versions) in their paraphrases after reading the *USA Today* version than after reading the longer *New York Times* version, suggesting that lack of background information does matter. But this overall difference does not really test the claims made. It is possible that *USA Today* stories produce lower comprehension overall while showing no decrement from longer versions for the subgroup of readers for whom it was designed -- those who use it as a supplement to regular reading of other newspapers.

The multiple regressions of Table 3, run separately for the two versions, provide a more direct test of this idea. Frequency of newspaper reading was related to comprehension of *USA Today* in the opposite direction: greater learning for less-frequent readers than for regular readers. Given the overall difference in comprehension between the versions, the coefficients suggest that frequency of newspaper reading makes little difference in comprehension of longer-form stories, such as those found in the *New York Times*. But for the shorter stories of *USA Today*, the lower overall comprehension comes

not from inexperienced readers (not the target audience), but from the more frequent and experience newspaper readers for whom the paper was designed.

The picture is more complicated than this, however, in that reading ("how often") and attention to ("how much") hard news is independently associated with greater comprehension of the shorter *USA Today* stories. That is, for a particular type of newspaper content, hard news, the *USA Today* argument does seem to hold. These two seemingly contradictory results are not regression artifacts (i.e., they reflect same-direction zero-order relationships), and must both be explained. To effectively comprehend *USA Today* stories lacking in background information, simple frequency of newspaper reading is not enough. Apparently, readership itself confers no special skills for comprehending newspapers in general (witness the same-sign but non-significant relationship for the *New York Times* stories), and in fact may instead produce an expectation of greater background information. When this expectation is not met, comprehension suffers, whereas infrequent readers do relatively better. However, frequent and attentive reading of hard news stories (themselves more likely to be written tersely and in inverted-pyramid style than soft news stories) seems to provide the training and orientation necessary to cope with *USA Today* stories.

For the fuller *New York Times* stories, the role of newspaper experience is quite different. There is little impact of simple amount of newspaper readership, but reading and attending to hard and soft news are oppositely related to comprehension. We think

the key issue here is not the typical content meaning of the labels hard and soft, but rather the forms that each also refers to. Reading hard news stories (more likely to be constrained by traditional news style considerations -- often shorter, fact-loaded inverted pyramids) does not prepare one for comprehending long-form analyses, and those who read and attend more to hard news in fact learned less from these long analytic stories. However, soft news stories are usually long, follow different narrative structures in which facts are dispersed and background is provided. And reading such stories, even if the content is often people-oriented and non-analytic, prepares one to read analysis in the same format.

We must also consider an alternative explanation. Even though the comprehension measure counted facts present in both stories, it is possible that the shortness of the *USA Today* stories produced a bias in respondents' reproductions of the stories. That is, if readers expect that some proportion of the newspaper story to be background information, or that they should exercise some selection, they will reproduce a shorter version containing fewer essential facts after reading a shorter story. Thus, it is still possible that readers of *USA Today* stories learned as much as those who read the corresponding story from the *New York Times*. However, even this explanation is problematic, since it suggests a devaluing and potential disregarding of essential information presented in this brief format.

We regard this alternate explanation is convoluted and unlikely, given the instructions

to respondents to paraphrase in as much detail as possible. A more likely bias would be for the inclusion of incidental or background information in paraphrases of *New York Times* stories, with the potential to leave out some of the target facts through simple overload. All in all, we think it is much more plausible to regard these scores, and differences in them, as reflecting comprehension differences stemming from these two presentation styles.

The research reported here is limited to a particular type of story, analytic presentation of "issue" news. As such, its generalization to incident news or to people features is uncertain and deserves further exploration. But for this important type of news, the implications of story format are both more striking and more important than we anticipated. By writing analysis pieces without background in what resembles traditional hard/incident format, *USA Today* does place comprehension at risk. Simple frequency of newspaper readership is not enough to equip one to cope with this combination, thus calling the assumptions of the paper into serious question. Instead, it is apparently experience with and a history of attention to the physical format of short, fact-filled stories that prepares one to read and comprehend *USA Today* and the experience with a longer-form, more relaxed presentation style that prepares one for identical content in *New York Times* format.

TABLE 1

FACTOR ANALYSIS FOR EVALUATIONS

	Surface Evaluation	Thoughful Critique	Turned Off
Not want to finish	.01	.24	.87
Told all needed	.30	.58	.38
In depth	.54	.29	.51
Entertaining	.81	.23	.22
Interesting	.89	.19	.05
Did not take too long	.27	.78	-.08
Informative	.35	.74	.20
Enough background	.23	.61	.50
Easy to understand	.69	.37	.01
Well-written	.69	.45	.18
Reliable	.57	.48	.37
Complicated	.21	.37	.68
Told both sides	.26	.64	.41
Wanted more info	.75	.16	.22
Boring	.19	.00	.84
Biased	.21	.58	.39

TABLE 2

READABILITY

	School		Trash	
	USA Today	NY Times	USA Today	NY Times
Fry	11.5	12+	11.6	12+
Flesch[1]	41.5	35.7	43	29.7
Raygor	12+	12+	12+	12+
Fog	15*	19.3*	15*	20.7*
Smog	13	14.7	13.2	16.2
Dale-Chall	15	14	11.9	14.7

[1](All scores are grade levels except Flesch, which is based on a 0 to 100 scale with 0 being extremely easy and 100 being extremely difficult.)

* $p<.05$
** $p<.01$
*** $p<.001$

TABLE 3

COMPREHENSION

	USA TODAY	NEW YORK TIMES
Age	.13	.08
Gender	.05	-.09
R^2	.03	.04
Minutes Per Week Newspaper	-.21	-.10
Hard News	.24	-.22
Soft News	.05	.31*
R^2	.09*	.11*
Surface Critique	.04	.09
Thoughtful Critique	-.12	.03
Turned Off	-.29*	-.27*
R^2	.10*	.07
TOTAL R^2	.22**	.21**
(N)	(89)	(77)

* p<.05
** p<.01
*** p<.001

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